Our Bookshelf.

An Agricultural Atlas of Wales. Made on behalf of the Institute for Research in Agricultural Economics, University of Oxford, by J. Pryse Howell. Pp. iii + 23 maps + 3 maps in pocket. (Southampton: Ordnance Survey, 1921.) 5*s.* net.

It is to be hoped that the enterprise of the Ordnance Survey in publishing an agricultural atlas of Wales will be rewarded sufficiently to facilitate the publication of similar atlases for regions of England. Mr. J. Pryse Howell has worked at agricultural surveys for years at Aberystwyth and at Oxford, and the present atlas does considerable credit to his care and industry. It is based on parochial returns, and consists of twenty-three maps, one for each agricultural product. There are also three loose maps in colour giving the orography, geology, and rainfall of Wales, and as the agricultural maps are on translucent paper they can be superimposed on the loose maps in order to trace correlations.

It is a pity that the revision of Welsh geology is not yet sufficiently complete to give a better representation of the stratigraphy of West Wales based on the work of Prof. O. T. Jones and the correlation with geological facts. The correlations traceable often depend more on the drift than on the solid geology, though these maps of Wales are mostly of a kind simpler than one would find in England, for in Wales the greater part of the surface is impervious soil on hard rocks, and agriculture is dominated by orographical conditions which so greatly influence rainfall. In England the influence of soil would be more complex.

The agricultural relations of the belt between the Vale of Clwyd and the Dee at Corwen, of the lower Montgomeryshire Severn, the parallels between pigs and potatoes, and many other points, stand out clearly, while the curious distribution of lucerne, sainfoin, clover, and grasses under rotation prompts a number of questions. The atlas should be used widely by agriculturists and economists, by persons interested in local administration, and by teachers, especially teachers of geography.

The Silver Bromide Grain of Photographic Emulsions. By A. P. H. Trivelli and S. E. Sheppard. (Monographs on the Theory of Photography from the Research Laboratory of the Eastman Kodak Co.) Pp. 143. (New York: D. Van Nostrand Co.; London: Kodak, Ltd., 1921.) 15*s.*

The research laboratory of the Eastman Kodak Co. has in preparation a series of monographs on the theory of photography. The time is ripe for the presentation in a connected sequence of the work done and the results obtained, for these are very numerous and very scattered. The present volume is the first issued, and presumably may be regarded as a sample of those that are to follow. The company, the laboratory, and the authors are to be congratulated in that they have made so good a beginning. The authors have been engaged for some years in the practical study of the subject with which they deal, and they give some results that have not been published before. A study of the relations that exist between the sizes of the grains and their photographic properties is reserved for a future monograph, though it is by no means neglected in the present treatise. The first half of the volume deals with the influence of ammonia on photographic emulsions and a theory of ripening; von Weimarn's theory and the determination of the dispersity of silver bromide precipitates; accessory factors influencing the dispersity of silver bromide emulsions; crystallisation catalysis; and capillarity and crystalline growth. The intimate relation between grain structure and photographic properties is, however, fundamentally a matter of crystallographic investigation, and the remainder of the volume is devoted to this matter in five chapters. The authors state that "when the experimental conditions regulating the three primary factors, (1) dispersity-distribution, (2) recrystallisation, and (3) sorption (both adsorption and desorption), are completely known, scientific control of the characteristic curve—*i.e.* of speed, latitude, and density—will be possible." The book is copiously illustrated and well indexed; it has many summaries, all necessary references, and an extensive bibliography. C. J.

Indian Science Congress: Handbook for the Use of Members attending the Ninth Meeting to be held at Madras from the Thirtieth of January to the Fourth of February, 1922. Pp. x + 165. (Madras: Capt. Clive Newcomb, Chemical Examiner, 1921.)

The Indian Science Congress has held annual meetings in various parts of India yearly since 1914 much on the lines of the British Association for the Advancement of Science, and the handbook issued for this year's meetings contains a number of interesting articles by experts, including a brief history of Madras and its Corporation, descriptions of the museum and Connemara Public Library, the Madras Harbour, the new city waterworks and the chlorination purification of the supply, and an interesting account of places of historical interest within twenty miles of the city. General education in Madras is dealt with by the principal of the Presidency College, and medical education by the principal of the Medical College. The remainder of the little book is occupied with accounts of scientific work in the Presidency in different branches of knowledge, and includes the work of the King Institute of Preventive Medicine, situated several miles from the city and concerned chiefly with hygiene, and an interesting account of the valuable practical investigations being carried out at the Agricultural and Research Institute at Coimbatore by the Director of Agriculture. Contributions on prehistoric archæology, the anthropology of Southern India, marine zoology, the geology of Madras, and biological work there, complete an instructive handbook which is very suitable for the purpose for which it has been designed.

L. R.

Treatise on Fractures in General, Industrial, and Military Practice. By Prof. J. B. Roberts and Dr. J. A. Kelly. Second edition, revised and entirely reset. Pp. x + 755. (Philadelphia and London: J. B. Lippincott Co., 1921.) 42*s.* net.

The authors of this volume have set out, as they claim in their preface, to present a lucid view of the subject

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in the light of recent discoveries, to point out an accurate scientific procedure, whether operative or other, according to the character of individual injuries, and to urge the general practitioner, as well as the surgical specialist, to the study of methods which, as experience indicates, have given the best results.

As a consequence of experience gained during the war, the treatment of gunshot and other wounds of bones has been revolutionised, because the distinction between aseptic fractures with unbroken skin and those breakages of bone which have been exposed to infection has been fully grasped. The authors insist that much of the old teaching as regards the treatment of fractures still holds good, as, for example, Lucas-Championnière's dogma as to early mobilisation and gentle massage being valuable for restoring contour and function in fractures of shafts and joint-ends of bones. They urge the critical, intelligent, and frequent examination of fractures instead of a too absolute reliance on radiographic interpretations by inexperienced laboratory workers. The illustrations so very necessary in a descriptive book of this nature are, without exception, excellent, and will be found a great help in following the text. Indeed, it is the most complete and comprehensive book on a very important branch of surgery that we have yet seen and it may be regarded as one of the few good results of the world-war.

The Raw Materials of Perfumery: Their Nature, Occurrence and Employment. By E. J. Parry. (Pitman's Common Commodities and Industries.) Pp. ix + 112. (London: Sir Isaac Pitman and Sons, Ltd., n.d.) 3*s.* net.

DURING the last half-century perfumery has in part become a branch of synthetic organic chemistry. Many of the odoriferous constituents of natural perfumes (*e.g.* vanillin and heliotropine) are prepared synthetically in a pure state, and some substitutes (*e.g.* "artificial musk," trinitrobutyl xylene) for natural perfumes are now in use. The rare natural perfumes such as musk have not yet been produced in the test-tube. With the production of the materials, however, the perfumer's art has made only a beginning and much depends on the skilful blending of the constituents. Mr. Parry has given a simple and interesting account of his subject. It is non-technical, and perhaps might have included a little more of the chemistry involved. The latter is of so complicated a character that it would perhaps not have been intelligible to the ordinary reader. The address of the president of the Chemical Section of the British Association last year (NATURE, October 20, 1921, p. 243) shows, however, that something can be done in this direction.

Handbuch der biologischen Arbeitsmethoden. Edited by Prof. Dr. Emil Abderhalden. Leiferung 45, Abt. 5, *Methoden zum Studium der Funktionen der einzelnen Organe der tierischen Organismus.* Teil 7, Heft 2, *Sinnesorgane.* Pp. 197-260. (Berlin und Wien: Urban und Schwarzenberg, 1921.) 28.80 marks.

THE section on the analysis of sounds in Prof. Abderhalden's extensive "Handbuch" is written by Dr. E. Budde. It contains accounts of the use of mechanical integrators for the analysis of a periodic curve, and of the method of calculating the terms of the Fourier series from ordinates at regular distances apart. Tables are given to facilitate the calculation when seventy-two ordinates are measured per period. It is not often that so many ordinates are taken, but when it is necessary or desirable the tables will save much time and trouble.

A Course of Practical Organic Chemistry. By Dr. T. Slater Price and Dr. D. F. Twiss. Third edition. Pp. xiv + 239. (London: Longmans, Green and Co., 1922.) 6*s.* 6*d.*

IN this edition minor alterations have been made to bring the subject-matter up to date. The methods of preparation of typical organic compounds and the quantitative analysis of compounds of carbon, hydrogen, nitrogen, the halogens, sulphur, and phosphorus, are well described. The scheme given for the identification of "an organic compound" is too incomplete to satisfy ordinary requirements, and could usefully be extended in future editions. Mixtures should also be considered.

Letters to the Editor.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Langley Machine and the Hammondsport Trials.

THE leading articles in NATURE of November 3 and January 26 last appear to have missed the point of my discourse on the Langley Machine and the Hammondsport Trials. My paper was written to expose a fallacy in which officials of the Smithsonian Institution had used their great opportunities for imposing upon the public a false belief that the Langley machine had been flown in 1914.

The leading articles in NATURE, instead of making any denial of the charge that vital changes were made in the Langley machine at Hammondsport before any flight was attempted, contend that my "paper tends to give an erroneous impression of the importance of the part played by the Wright Brothers" in the producing of the first man-carrying aeroplane. NATURE suggests that it was Langley who did the laborious work of preparing the scientific data upon which the first aeroplane design was based, and that the Wright Brothers merely contributed the system of wing warping—the final step or "keystone"—in the problem of flight. The writer of the articles in NATURE refers to Sir Richard Gregory's book "Discovery," from which he makes two quotations.

I agree with the author of "Discovery" that many great inventions are based upon pure science, and that often the person who receives the credit for an invention is the one who has added some mechanism which turns the scientific knowledge of another to practical use. In the facts in regard to the invention of the aeroplane, however, the author of "Discovery" and the writer of the leading articles in NATURE are in error. The real truth of the discovery of flight is that the Wright Brothers first established a scientific basis for aeroplane design; they then invented the mechanical means for putting this scientific knowledge to practical use. The spectacular nature of the latter has blinded the public to the importance of the former.

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